SONY

White paper

August 2012

XPERIA SL

LT26ii

Purpose of this document

Sony product White papers are intended to give an overview of a product and provide details in relevant areas of technology.

Document history

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Sony Mobile Developer World

For the latest technical documentation and development tools, go to *http://developer.sonymobile.com/wp.*

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Product overview

Xperia™ SL – Experience everything in HD

Enjoy the pure brilliance of your favourite movies and pictures in detailed, sharp, vibrant colours. On a screen that's sharper than any other. Don't like waiting? Xperia™ SL is powered by a super fast dual core 1.7 GHz processor so you can browse, watch, snap or play in an instant.

With unique media apps for smart viewing, the latest Android software and all the entertainment you'd ever want from Sony Entertainment Network, life just got a whole lot brighter. Want things even bigger, even louder? Share music on your speakers with one touch.

Feel the beauty in the details

Don't see, feel. The razor-sharp 4.3˝ 720p Reality Display powered by Mobile BRAVIA® Engine packs more pixels per inch. So you see your films, your snaps and your friends brighter than ever.

Feeling creative? Shoot movies in full 1080p HD video and show them on the crisp, clear HD display or share them on your HD TV, tablet or laptop via HDMI or DLNA. Night in with a good film? See all the art and read the credits in the "Movies" application. Or use the HD front camera to meet your mates online.

Superfast your life

Switch on, then play on, in a flash. With the super-fast 1.7 GHz processor you can download videos and apps, and surf all your favourite sites in an instant. It's multi-tasking at the speed of delight.

Snap quick shots too. Start the 12 MP camera in just over a second. Point and shoot in a second. Now zoom into your stills and videos from the smart "Album" application, and share them with one touch. Now keep it all. Store everything for life in 50GB of free cloud storage. It's the easy, instant way to access your content from any device.

All the music you ever want

With 15 million tracks to choose from at Music Unlimited™ you'll never get bored. Find them the easy, colourful way in the "WALKMAN" application with album art. Preset your music genre, or create one of your own with the equalizer. Now blast out your bass with xLoud™ and 3D surround sound. Want it higher? Connect straight to your speakers with one touch.

Find things fast too

Enjoy entertainment the easy way with the "WALKMAN", "Album" and "Movies" applications, all specially tailored for you. Find your film with movie art, cruise your stills, see where in the world you took them using Globe View, and check out every music track by its cover. Keep tabs on your bill with data monitoring, or download the apps you want. There are hundreds of thousands to choose from.

Prepared for action

Enjoy flowing FIFA™ football. Or full contact karate. Xperia™ SL is PlayStation® Certified to give you a better gaming experience. Get games from PlayStation® Store, and enjoy them on the HD screen, or your HDTV.*

* *Titles available from PlayStation® Store and Google Play™.*

Store more. 50GB free storage for life**

Now there's 50GB of free storage for your music, videos, photos and more – and you can use it forever. Together with Box® we are offering you a place for your stuff where you can get to everything from your phone, computer or tablet. Just download the Box for Android app to set up an account from your Xperia™ SL to claim your free storage space.

** *Free 50 GB of file storage is a time limited offer that ends 31 December 2012.*

Sony Entertainment Network[1]. Your ultimate source for digital entertainment

Feasts for film fans, masses of music. Enjoy millions[2] of songs from Music Unlimited™. Or download your favourite hit movies from Video Unlimited™. It's all on Sony Entertainment Network. No trips to the store. No late fees. Just pure entertainment.

The best tracks from Music Unlimited™. The latest movies from Video Unlimited™ – enjoy everything with one account. It's the perfect fit for a life full of entertainment.

NOTE: Sony Entertainment Network with Video Unlimited™ and Music Unlimited™ is not available in all markets. Additional charges may apply.

1.Paid service. Video Unlimited™ and Music Unlimited™ are not available in all markets.
2.The number of tracks available varies by country.

Signature features

The Sony Xperia™ SL comes with a range of Sony features as standard. Below is a summary of the key signature features.

Xperia™ Timescape™

Communication made easy

The Timescape™ application manages all your communication with one person in one place. You can effortlessly browse by category your Facebook™, Twitter™, email and text communications, as well as view your photos. Now everything is all together and in chronological order, so you don't have to open different applications to see what's going on.

Xperia™ infinite button

Everything you want – from everywhere

Tap the infinite button in the Timescape™ application and smart filter each category of communication by person. For example, when viewing a text message from a friend in Timescape™, tap the infinite button to view a list of all chat messages with that friend.

Xperia™ Local connectivity

More control over your media

Using Xperia™ Local connectivity, you can exercise more control over how media files get transferred and stored. For example, you can select MTP mode to transfer files if you want to limit the risk of data corruption.

Xperia™ Home screen application

The place you call Home

Customise your Home screen with widgets, shortcuts, folders, themes, wallpaper and other items. Where’s best for you? Email top right? Music player bottom left? You decide. With four extensions to your Home screen, you’ve got plenty of space to put things where you want. Just remember to flick left or right to find them.

Facts – dimensions, weight, performance and networks

Operating system	Google™ Android™ 4.0 (Ice Cream Sandwich)
Processor	1.7 GHz Qualcomm MSM8260 Dual Core
GPU	Adreno 220
Size	128 x 64 x 10.6 mm
Weight	144 grams
Available colours	Black White Dark Silver Pink
SIM card	Micro SIM
Main screen	
Colours	16,777,216 colour TFT
Resolution	1280x720 pixels
Size (diagonal)	4.3 inches
Scratch-resistant	Shatter proof sheet on scratch-resistant glass
Input mechanisms	
Text input	On-screen QWERTY keyboard
Touch screen	Capacitive
Touch gesture	Yes – multi-touch, up to 10 fingers supported
Memory	
RAM	1 GB
Flash memory	Up to 32 GB*
Expansion slot	No
Camera	
Camera resolution	12.1 MP
Digital zoom	16x
Photo flash	Yes – Pulsed LED
Video recording	Yes – HD 1080p
Video chat camera	Yes
Front Camera	Yes – HD 720p for video chat and 1.3 MP for camera capture
Sensors	

Accelerometer	Yes
Proximity sensor	Yes
Ambient light sensor	Yes
Magnetometer	Yes
Gyroscope	Yes
Networks	
LT26ii	UMTS HSPA 850 (Band V), 900 (Band VIII), 1900 (Band II), 2100 (Band I) GSM GPRS/EDGE 850, 900, 1800, 1900
Data transfer speeds	
GSM GPRS	Up to 86 kbps
GSM EDGE	Up to 237 kbps
UMTS HSPA cat 6 (upload)	Up to 5.8 Mbps
UMTS HSPA cat 10(download)	Up to 14.4 Mbps
Talk time (GSM)	Up to 7 hours 15 min.**
Standby time (GSM)	Up to 410 hours**
Talk time (UMTS)	Up to 8 hours 15 min.**
Standby time (UMTS)	Up to 390 hours**
Music listening time	Up to 33 hours**
Video playback time	Up to 6 hours 30 min.**
Embedded Battery	1750 mAh typical 1700 mAh minimum

** Memory comprises 1 GB of firmware (using 2 GB physical memory to secure against memory errors), 2 GB of "Phone memory" for downloaded applications, and about 26 GB of "Internal storage" for music, pictures and movies, and some application data. For a more detailed description of the different types of memory and how they are used, see "Memory in Android™ phones" on page 19.*

*** Values are according to GSM Association Battery Life Measurement Technique as performed in controlled laboratory conditions. Actual time may vary.*

NOTE*:* All performance metrics are measured under laboratory conditions.

NOTE: Battery performance may vary depending on network conditions and configurations, and phone usage.

Categorised feature list

Camera

3D Sweep Panorama
12.1 megapixel camera
16x digital zoom
Aperture f/2.4
Auto focus
Face detection
Face recognition
Flash/Pulsed LED
Front-facing camera (1.3 MP 720p)
Geotagging
HD video recording (1080p)
Image stabiliser
Red-eye reduction
Scene recognition
Self-timer
Send to web
Smile detection
Sony Exmor R™ for mobile image sensor
Sweep Panorama
Touch focus
Video light
Video recording

Music

3D surround sound
Album art
Bluetooth™ stereo (A2DP)
Clear audio
Clear bass
Music tones (MP3/AAC)
PlayNow™ service*
TrackID™ music recognition*
“WALKMAN” application
xLoud™ Experience

Internet

Bookmarks
Google Play™
Google™ search*
Google Voice™ Search*
Google Maps™ for Mobile with Street view and Latitude™*
NeoReader™ barcode scanner
Pan & zoom
Web browser (WebKit™)

Communication

Call list
Facebook™ application*
Google Talk™ application*
Noise suppression
Speakerphone
Twitter™ (Timescape™ integration)*
Xperia™ Timescape™
Xperia™ with Facebook™

Messaging

Conversations
Email
Google Mail™*
Instant messaging
Multimedia messaging (MMS)
Predictive text input
Sound recorder
Text messaging (SMS)

Design

720p HD display
Auto rotation
Gesture input
On-screen QWERTY keyboard
HD Reality Display with Sony Mobile BRAVIA® ENGINE
Screenshot capturing
Touch screen
Voice input
Wallpaper

Entertainment

3D games
Media browser
Motion gaming
PlayStation® Certified
Radio (FM radio with RDS)
Sony Entertainment Network*
TV launcher
Video streaming
YouTube™*

Organiser

Airplane mode
Alarm clock
Calculator
Calendar
Contacts
Document readers
eCompass™
Infinite button
Notes
Setup guide
Stopwatch
Tasks
Timer
Xperia™ Album

Connectivity

3.5 mm audio jack (CTIA)
aGPS*
ANT+ sports fitness
Bluetooth™ wireless technology
DLNA Certified®
GLONASS*
HDMI support
Media Go™
Media Transfer Protocol support
Micro USB support
Native USB tethering
NFC
PC Companion
Synchronisation via Facebook™
Synchronisation via Google™
Synchronisation via Exchange ActiveSync®
Synchronisation via SyncML™
USB High speed 2.0 support
Wi-Fi®
Wi-Fi® Hotspot functionality

** This service is not available in all markets.*

Technologies in detail

NOTE: The information outlined below is general and levels of compliance to standards and specifications may vary between products and markets. For more information, contact Sony Mobile Developer World or your Sony contact person where applicable.

Device-to-device communications (local)

Bluetooth™ wireless technology

Bluetooth™ profiles supported	Advanced Audio Distribution Profile v1.2 Audio/Video Remote Control Profile v1.0 Handsfree Profile v1.5 Headset Profile v1.1 Object Push Profile v1.1 Phonebook Access Profile v1.0 Serial Port Profile v1.1 Personal Area Network Profile V1.0 Human Interface Device Profile V1.1 Health Device Profile V1.0
Core version and supported core features	BT3.0
Connectable devices	Products supporting at least one of the profiles above.

More information:

http://developer.sonymobile.com/wp

www.bluetooth.com

Wi-Fi®

Supported standards	IEEE 802.11b/g/n and Wi-Fi®
Connectable devices	Wi-Fi® access points
Frequency band	2.4 GHz
Data transfer rate	Up to 72 Mbit/s
Security	WEP 64 bit WEP 128 bit TKIP CCMP (AES) Open Authentication Shared Authentication EAP-SIM EAP-TLS EAP-TTLS/MSCHAPv2 PEAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC WPA Personal and WPA2 Personal WPA Enterprise and WPA2 Enterprise
Encryption	WEP, TKIP and AES
Power save	WMM-UAPSD QoS, WMM

DLNA Certified® (Digital Living Network Alliance)

Supported Device Classes	**M-DMS – Mobile Digital Media Server** Media Types: images, video and music Summary: The digital media server exposes the media files in your phone to a Wi-Fi® network. The files can then be accessed from other DLNA Certified® clients. **+PU+** Media Types: image, video and music Summary: Play media in the phone on another device, such as a TV or computer using 2-box push technology. +PU+ is integrated into the Gallery and Music applications. **M-DMP – Mobile Digital Media Player** Media Types: image, video and music Summary: Play content stored on another device, for example, a server or a PC, directly on the phone. **+DN+** Media Types: image, video and music Summary: Download content stored on another device, for example, a server or a PC, and play the downloaded content directly on the phone.
Supported Bearers	Wi-Fi®
DRM Support	The DLNA Certified® implementation does not support DRM-protected content.

Messaging

MMS (Multimedia Messaging Service)

According to OMA Multimedia Messaging Service v1.0 + SMIL

Email

Bearer type (IP)	GPRS, EGPRS, UMTS
Character sets	BIG5 Traditional Chinese GB18030 ISO-2022-JP Japanese ISO-8859-1 ISO-8859-2 Eastern Europe ISO-8859-5 Cyrillic ISO-8859-7 Greek ISO-8859-9 Turkish ISO 8859-11 KOI8-R Cyrillic Shift_JIS Japanese USASCII UTF-16 UTF-8 Windows® 874 Windows® 1251 Cyrillic Windows® 1252 Windows® 1254 Turkish Windows® 1258 Vietnamese
Protocols	POP3 and IMAP4
Push email	Microsoft® Exchange ActiveSync® (EAS)
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and START-TLS
HTML mail	Yes (read only)

More information:

http://developer.sonymobile.com/wp

www.openmobilealliance.org

Positioning – location based services

Supported standards:

- OMA Secure User Plane Location (SUPL) v1.0
- 3GPP™ Control Plane location (including Emergency location)
- Qualcomm® GPSOneXtra™

Supported satellite systems:

- GPS
- GLONASS*

* **NOTE***:* GPS and GLONASS are used together to calculate the position. Positioning is more robust and accurate in most conditions, if both systems are active. The benefits of using GLONASS are automatically available for all applications using the Satellite Positioning API (referred to as "GPS Provider" in Android terminology).

Provisioning (OMA CP)

OMA CP version 1.1

Multimedia (audio, image and video)

Audio Playback	**Decoder format**	**Supported in file format**
	Audio decoding MPEG-1/2/2.5, audio layer 3	MP3 (.mp3), 3GPP (.3gp), MP4 (.mp4, .m4a)
	AAC, AAC+, eAAC+	3GPP (.3gp), MP4 (.mp4)
	AMR-NB, AMR-WB	3GPP (.3gp)
	General MIDI (GM)	SMF (.mid)
	Linear PCM 16bit	WAV (.wav)
	OTA	OTA (.ota)
	vorbis	Ogg (.ogg)
	FLAC	FLAC (.flac)
Audio Recording	**Encoder format**	**Supported in file format**
	AMR-NB, AMR-WB	3GPP (.3gp), MP4 (.mp4), AMR (.amr)
	AMR-NB, AMR-WB, AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps	3GPP (.3gp), MP4 (.mp4)
Image Playback	**Decoder format**	**Supported in file format**
	1, 4, 8, 16, 24 and 32 bpp and RLE encoded formats	BMP (.bmp)
	Single and multi-frame, bitmap mask support (GIF87a format and GIF89a format)	GIF (.gif)
	Joint Photographic Experts Group	JPEG (.jpg)
	Portable Network Graphics Bitmap mask support	PNG (.png)
	Wireless Bitmap	WBMP (.wbmp)
Image Capture	**Encoder format**	**Supported in file format**
	Joint Photographic Experts Group	JPEG (.jpg)
Video Playback	**Decoder format**	**Supported in file format**
	MPEG-4 Visual Simple Profile Level 6, Advanced Simple Profile Level 5	3GPP (.3gp), MP4 (.mp4) Matroska (.mkv), AVI (.avi, .xvid), (.mov)
	H.264 High Profile Level 3.2	3GPP (.3gp), MP4 (.mp4), Matroska (.mkv)
	H.263 Profile 0 Level 70	3GPP (.3gp)
	VP8	WebM (.webm)

Video Recording	Encoder format	Supported in file format
	Video H.263 Profile 0, H.264 Baseline Profile Audio: AAC-LC stereo Sample rate: 48 kHz Bit rate: 128 kbps, AMR-NB	3GPP (.3gp), MP4 (.mp4)
Audio/Video Streaming	Streaming transport	RTSP according to 3GPP™ HTTP streaming
DRM	DRM (Digital Rights Management) – features the rights and copy protection of downloaded content	OMA DRM 1.0 Marlin DRM

Synchronisation (OMA DS, EAS, Google Sync™)

OMA Data Synchronisation protocol versions 1.1.2 and 1.2

OMA Data Formats: vCard 2.1, vCalendar 1.0

Microsoft® Exchange ActiveSync® protocol version 2.5

Microsoft® Exchange ActiveSync® protocol version 12

Microsoft® Exchange ActiveSync® protocol version 12.1

Microsoft® Exchange ActiveSync® protocol version 14

Microsoft® Exchange ActiveSync® protocol version 14.1

Google Sync™

Related information:

http://developer.sonymobile.com/wp

Web browser

Browser version	Android 4.0 Browser (Based on WebKit™)
Browser Application	Bookmark synch Desktop mode Full-page PC rendering Internet search Landscape/portrait rendering NFC Link Sharing Off-line reading Pan & Zoom
Browser compliancy	CSS 2.0 CSS 2.1 CSS 3.0 DOM 2.0 DOM 3.0 HTML version. 4.0 HTML version. 5.0 JavaScript 1.7/ECMA-script 262 3rd edition WebGL 1.0 XHTML Basic version 1.0 XHTML 1.1 SVG 1.1
Supported Device API	Device orientation API File reader API Geo-location API Touch events API (including multi-touch)
Protocol compliancy	Gzip HTTP/1.1 OMA Download 1.0 TLS 1.0 and SSL 3.0

Related information:

http://developer.sonymobile.com/wp

Memory in Android™ phones

To use Android phones efficiently, users should be aware of the different types of phone memory. This knowledge is important in order to understand, for example, where music, photos and videos are saved; how many apps can be downloaded from Google Play™; and how photos can be copied to a PC.

Generally, all Android phones share the same basic memory setup. What differs is how much memory is available to you via the different types of memory, and whether your phone uses an external SD card or an internal memory chip. Any information specific to the particular phone model described in this White Paper is noted as such.

Please note that when internal memory is used, the figures you see in the phone information menus may appear to not match with the total amount of stated physical memory. In other words, the figures might not seem to add up. The reason for this is that some sections of the memory may use two memory cells instead of one for every storage unit, in order to secure storage integrity. The need for such “double storage” depends on the type of memory chips used and may therefore differ between products.

Types of memory

The types of memory described below are consistent with the terminology used in Sony mobile phone menus and in other content relating to 2012 Xperia™ phones:

1. **Dynamic Memory** (also known as RAM, or non-persistent memory, because everything in RAM disappears when the power is turned off) is used as “working memory” when the device is actually running, and is shared between the operating system and all active applications and services. Therefore, the amount of Dynamic Memory influences how many applications and operating system services can run at the same time. In Android™ phones, the operating system automatically closes applications and services that are not being used. However, such automatic functionality has limits. For example, if a lower amount of RAM is assigned to a certain release of the operating system, phone speed will be impacted.

   If you experience problems with RAM, for example, if the phone runs slower than usual or if the Home application restarts frequently when you leave an application, you should minimize the use of apps that run all the time. Such apps could include, for example, applications that frequently download social service updates. You could also consider using a static wallpaper instead of a live wallpaper.

   To see which apps and services are currently active, go to **Settings > Applications > Running Services**. You should have at least 50 MB, and ideally 100 MB or more, of free RAM to avoid slowdowns and application restarts.

   You should also be aware that if you update the phone to a later Android release, the load on the built-in Dynamic Memory will increase due to the addition of more features. As a result, the phone may run slower after an update.

All the memory types described below (in sections 2 to 5) together comprise “persistent” memory. What this means is that all data and content stored on these sections of memory will “persist” after the power is turned off (in contrast to the non-persistent RAM). Persistent memory can therefore be used for storing applications, images, music and any other content which can only disappear after being explicitly deleted.

2. **System Memory** (also known as “System partition” or “/system”) is used for the Android OS and for most applications that are pre-loaded from the factory. This type of memory is normally locked, and can only be changed through a firmware upgrade. There is usually some free space available in this section of memory. However, since it is locked, you cannot save apps, photos or any other content to this memory. System Memory is reserved for future firmware upgrades, which almost always need more memory than the original firmware. You cannot see or influence the use of this memory.

3. **Phone Memory** (also known as “Data partition” or “/data”) is a memory type that is used as working memory. It can be compared to the C: drive on a PC or to the startup disk on a Mac. All applications downloaded from Google Play™ or other sources are installed (at least initially) to this type of memory. Some can later be moved to another memory.

   In this type of memory, as with System Memory, all applications have an allocated area which no other applications can access and to where the applications can and usually do save their data (such as phonebook, calendar, notes, and email applications).

   Phone Memory will tend to fill up as a result of normal use, the use of applications saving their data, and you downloading and installing new applications. Therefore, the larger this memory is from the start, the more applications you can download and use.

   If the Phone Memory starts to get full, the phone slows down, and in some cases it might no longer be possible to install more apps. You should always ensure that you have at least 50 MB of free Phone Memory. If not, you should consider removing some apps that you seldom use, or move some applications from the Phone Memory.

   You can see how much Phone Memory is free under **Settings > Storage > Phone memory**. You can also view Phone Memory availability and usage information under **Settings > Applications > Manage Applications**. In the Xperia™ SL, about 2 GB of Phone Memory is available out of the box.

4. **Internal Storage/SD card** (also known as “/sdcard”) is the memory used for:

   - Content such as photos, movies and music which is added, for example, as a result of the user taking photos with the camera, downloading media files, and performing file transfers.
   - Certain applications to store data in cases where larger amounts of content are involved. For example, applications for games and maps need to store larger files which would not fit in the Phone Memory.
   - Applications that can be moved after installation from the Phone Memory. Note that not all applications can be moved, and in such cases the option to move the particular application will not be available. Typically, apps running as services, apps with widgets, or apps for live wallpapers cannot be moved. Also note that when apps are moved to the Internal Storage or to the SD card memory, a small part of the app will still remain in the Phone Memory.

   This type of memory differs most between different Android phone models. In some models, a large amount of internal memory is built into the phone and is referred to in the user interface as “SD card” memory. In other cases, the phone features a memory card slot and a removable memory card that is bundled with the phone. No Android phone can be shipped without this memory type whether it comes as built-in storage or in the form of a removable memory card. The advantage of having an external memory card slot is that a user can replace the memory card with a larger one later on. In contrast, built-in internal memory cannot be extended. The drawback for the manufacturer is that a removable card is more expensive. Therefore, at a certain price level, a manufacturer can offer a larger amount of memory if it is built in, everything else being equal.

   You can see how much Internal Storage is available under **Settings > Storage > Phone memory**. In the Xperia™ SL, which does not feature a removable memory card, about 26 GB is available as Internal Storage.

   In the Xperia™ SL, the three areas of persistent memory (System Memory, Phone Memory, and Internal Storage), together with some small memory allocations for system operations, share 32 GB of built-in eMMC memory.

   Note that in some products you may find both a large internal memory and a memory card reader slot. However, on the current Android platform, the card reader slot does not work in the same manner in a

phone with large internal memory, for example, a phone with only a memory card slot. Generally, while you can access content (such as videos, photos and music) on this optional memory card, you cannot in general save anything to the card. However, some applications, for example, a backup service application, may still be allowed to do so. In effect, this means that some products feature a fourth type of persistent memory, called “External Card”:

5. **External Card** (also known as “/ext-card”) is the name for the removable SD memory card in products where there is also Internal Memory and where this Internal Memory is referred to in the phone’s user interface as the “sdcard” memory. This External Card memory can generally not be written to from the phone, but it can be used (by the user) to store content from other sources. For example, you can write to this memory from a PC when the phone is connected to a PC and when the External Card is mounted. Some applications on the phone may in some cases, however, also have permissions to write to the External Card.

   The Xperia™ SL does not feature a physical memory card slot, so there is no External Card.

Backing up data to different memory types

Generally, you should not save photos, videos and other personal content solely on the internal memory of a phone. If something should happen with the hardware, or if the phone is lost or stolen, the data stored on the phone’s internal memory is gone forever.

In a phone where an SD card reader is the main memory, it is relatively easy to take the card out and copy all content to a PC or Mac, or to an entertainment device with a memory card slot. In a product featuring Internal Storage as the main memory, it is not possible to physically remove the memory. Instead, any critical or high-value content must either be transferred over a network (mobile or Wi-Fi) or via a cable. To facilitate the transfer of data via a cable, the Xperia™ SL supports the Microsoft standard, Media Transfer Protocol (MTP), which makes it possible to easily transfer content back and forth between your phone and a PC. For Apple Mac computers, a special application is available with built-in support for MTP. This application can be downloaded from the Xperia™ SL Support page.

Note that you do not need to back up or make a copy of applications that you downloaded from Android Market/Google Play™. They can normally be downloaded again if you have set up a Google account to work in your phone. You can find the apps which you have purchased under “My apps” in Android Market/ Google Play™, so you will not need to either pay for or search for them again.

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